SALIN, A.A.; DOLMATOV, Yu.D.

Removal of lead from TiO_2 by the method of isomorphic crystallization of strontium and lead sulfates from process liquors. Zhur. prikl. khim. 38 no.1:180-181 Ja '65. (MIRA 18:3)

1. Chelyabinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta lakokrasochnoy promyshlennosti.

RAKOCH, G.N.; SALEN, A.A.; ZINOV'YEV, A.F.; PILIPCHUK, N.A.; KOCHERGIN, A.I.; TULENKOV, I.F.; SHARAPOV, S.F.; VOLKOVA, V.S.; ROGALIS, Yu.P.; VLASOV, V.A.

Directions for the technical improvement of the electrolysis of zinc. TSvet. met. 38 no.5:22-25 My '65. (MIRA 18:6)

SALIN, A.S.

Matls

Recovery of wool fat from waste waters. A. S. Salin, S. N. Shcherbak, G. M. Otrokov, and A. K. Salina. U.S.S.R. 104,212, Dec. 25, 1956. Spent waters are first subjected to flotation, and the collected fatty concentrate is heated and passed through a vibrating filter and separator.

M. Hosch

4

SALIN, B.A.; ANIYATOV, I.

Lower age boundary of Caledonian intrusions in the Kandyktas Mountains (southern Kazakhstan). Izv.AN Kazakh.SSR.Ser.geol. no.4:75-77 '62. (MIRA 15:7)
(Kandyktas Mountains--Rocks, Igneous) (Geological time)

ABDULKABIROVA, M.A.; ALEKSANDROVA, M.I.; AFONICHEV, N.A.; BANDALETOV, S.M.; BESPALOV, V.F.; BOGDANOV, A.A.; BOROVIKOV, L.I.; BORSUK, B.I.; BORUKAYEV, R.A.; BUVALKIN, A.K.; BYKOVA, M.S.; DVORTSOVA, K.I.; DEMBO, T.M.; ZHUKOV, M.A.; ZVONTSOV, V.S.; IVSHIN, N.K.; KOPYATKEVICH, R.A.; KOSTENKO, N.N.; KUMPAN, A.S.; KURDYUKOV, K.V.; LAVROV, V.V.; LYAPICHEV, G.F.; MAZURKEVICH, M.V.; MIKHAYLOV, A.Ye.; MIKHAYLOV, N.P.; MYCHNIK, M.B.; NIDLENKO, Ye.N.; NIKITIN, I.F.; NIKIFOROVA, K.V.; NIKOLAYEV, N.I.; PUPYSHEV, N.A.; RASKATOV, G.I.; RENGARTEN, P.A.; SAVICHEVA, A.Ye.; SALIN, B.A.; SEVRYUGIN, N.A.; SEMENOV, A.I.; CHERNYAKHOVSKIY, A.G.; CHUYKOVA, V.G.; SHLYGIN, Ye.D.; SHUL'GA, V.M.; EL'GER, E.S.; YAGOVKIN, V.I.; NALIVKIN, D.V., akademik, red.; PERMINOV, S.V., red.; MAKRUSHIN, V.A., tekhn.red.

[Geological structure of central and southern Kazakhstan] Geologicheskoe stroenie TSentral'nogo i IUzhnogo Kazakhstana. Leningrad, Otdel nauchno-tekn.informatsii, 1961. 496 p. (Leningrad. Vsesoiuznyi geologicheskii institut.Materialy, no.41)
(MIRA 14:7)

(Kazakhstan--Geology)

SALIN, B.A.; CHUMACHENKO, P.M.

Manifestation of gold-arsenic mineralization in southern Kazakhstan.
Izv. AN Kazakh. SSR. Ser. geol. 21 no.3:84-87 My-Je '64.
(MIRA 17:11)

1. Yuzhno-Kazakhstanskoye geologicheskoye upravleniye, Alma-Ata.

SALIN, S. Kh. In Latvian

SALIN, S. Kh. -- "Influence of Methods of Soil Preparation and Time of Planting on the Soil Germination of Pine and Falling-Off of Seedlings in the Chief Types of Tree-Growing Conditions of the Latvian SSR." Acad Sci Latvian SSR. Inst of Forestry Problems, 1954. In Latvian (Dissertation for the Degree of Candidate of Agricultural Sciences)

SO: Izvestiya Ak. Nauk Latviyskoy SSR, No. 9, Sept., 1955

SALIN, S.N., inzhener.

[Work organization by the method of the crane operator F.A.Zyrianov] Organizatsiia truda po metodu kranovshchika F.A.Zyrianova. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 26 p. (MLRA 6:10)
(Zyrianov, F.A.) (Building)

SALIN, V.

Gad picker for cantilever timbering holes. Mast. ugl. 7 no.9: 20 S '58. (MIRA 11:10)

1. Zamestitel' glavnogo inzhenera shakhty im. Kirova tresta Cheremkhovugol'.
(Mine timbering) (Boring machinery)

L 52786-65 EWT(1)/EWT(m)/EWP(i)/EPA(w)-2/EEC(t)/EWP(b)/EWP(t)/EWA(m)-2

ACCESSION NR: AP5010741 Pz-6/Pi-4 IJP(c) JD/AT UR/0181/65/007/004/1233/1234

34
33

AUTHOR: Serebrov, L. A.; Salin, V. I. 21 B

TITLE: Field-intensified secondary electron emission produced by penetration through thin layers of zinc sulfide 18 27

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1233-1234

TOPIC TAGS: zinc sulfide, secondary emission, field intensification, emission amplification

ABSTRACT: Inasmuch as earlier investigations of field-intensified secondary emission were limited to dielectrics, especially porous films of NaCl, MgO, and KCl with thickness 0.5--70 μ, the authors investigated targets with ZnS layers. The measurements were made by a pulsed two-beam procedure described elsewhere (Radiotekhn. i elektron. v. 7, 1657, 1962). The targets were thin porous semiconductor layers (~ 0.5 μ) on aluminum substrates approximately 0.1 μ thick. The energy of the electrons in the working beam, which bombarded the targets from the substrate side, could be varied between 0.5 and 10 keV, the beam current not exceeding 1 μA. The energy of the electrons of the auxiliary beam, bombarding the front surface of

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L 52786-65

ACCESSION NR: AP5010741

the ZnS film, was 0.5 keV. The quantity used to characterize the efficiency of the secondary electron emission was the ratio of the secondary electron emission current pulses penetrating through the charged and uncharged targets. The results show that, regardless of the collector voltage, the amplification coefficient has a maximum near a primary electron energy of approximately 2 keV, which is known to be insufficient to enable the beam to penetrate through the target. It is concluded that the secondary emission is governed by two processes, one cascade-like multiplication of the secondary electrons in the pores of the semiconductor layer, and the other soft x-radiation from the substrate bombarded by the beam. It is suggested that this mechanism can serve as a basis for the construction of low-voltage emitters permitting great amplification of the primary beam. "The authors thank S. A. Fridrikhov for a discussion of the results." Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 24Oct64 ENCL: 00 SUB CODE: SS, NP

NR REF SOV: 006 OTHER: 003

Card 2/2

L 00773-66 EPF(c)/EPA(w)-2/EWT(l)/EWT(m)/EWP(i)/EWP(b)/EWA(m)-2/EWP(t)
IJP(c) AT/JD/JW
ACCESSION NR: AP5012581 UR/0181/65/007/005/1565/1567

58
55
8

AUTHOR: Serebrov, L. A.; 44,55 Salin, V. I. 44,55

TITLE: Field-intensified secondary electron emission 21,44,55 transmitted through thin layers of magnesium fluoride

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1565-1567

TOPIC TAGS: secondary emission, electron emission, magnesium compound, thin film 14

ABSTRACT: To explain more precisely how an electron with insufficient energy to pass through a thin film can cause this film to emit a secondary electron from the side opposite to the incident electron, the authors checked this phenomenon with thin films of MgF_2 on an aluminum substrate. The construction of the targets and of the vacuum instruments used for the measurements was analogous to that employed in a similar investigation with SnS (FTT v. 7, 1243, 1965). The measurements were made by a pulsed double-beam procedure, also employed previously. Comparison of the oscillograms of the secondary electron emission pulses shot through the positively charged MgF_2 layer and the pulses of the primary current has shown that in this case the emission becomes intensified by the field. The reasons for some deviations from results by others are briefly discussed. In addition to the field-intensified emission through the MgF_2 film, the authors considered secondary emis-

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L 00773-66

ACCESSION NR: AP5012581 3

sion by reflection, using pulses of primary electrons whose energies could be varied between 0.1 and 1.5 keV. In this case there was no intensification of the emission by the field. It is concluded that an appreciable contribution to the field intensification is made by soft x-rays induced in the target substrate. "The authors thank S. A. Fridrikhov for a useful discussion." Orig. art. has: 1 figure. 44,55

ASSOCIATION: none

SUBMITTED: 18Dec64 ENCL: 00 SUB CODE: SS, NP

NR REF SOV: 006 OTHER: 004

Card 2/2

SOURCE CODE: UR/0057/66/036/012/2121/2124

ACC NR: AP7001303

AUTHOR: Sorobriv,L.A.; Salin,V.I.

ORG: none

TITLE: Postexcitation conductivity of thin magnesium fluoride and zinc sulfide films

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no.12, 1966, 2121-2124

TOPIC TAGS: semiconducting film, zinc sulfide, magnesium compound, fluoride, electric conductivity, space charge, electron bombardment

ABSTRACT: The authors have employed the electron contact and pulse techniques described elsewhere by L.A.Serebrov and S.A.Fridrikhov (Radiotekhnika i elektronika, 7, 1949, 1962) to investigate the postexcitation conductivity induced by irradiation with 10 keV electrons in 0.5 micron MgF_2 and ZnS films vacuum deposited on aluminum substrates. Two electron beams were employed in the experiments: a 1 μA main beam of 10 keV electrons, which was swept across the specimen at the rate of 40 m/sec and served to excite additional conductivity in the film, and a 0.2 μA auxiliary beam of 1 keV electrons, which, moving at the rate of 4 m/sec, swept out a rectangular television-type raster on the film and served both to induce surface charge on the specimen before irradiation with the main beam and to detect changes in the surface charge distribution due to postexcitation conduction. Electric fields up to 10^5 to 10^6 V/cm were achieved at the specimen surface. Two stages could be distinguished

UDC: 537.311.33

Card 1/2

L 18841-66 EWT(1)/EWT(m)/EWP(t) IJP(c) JD/JW/AT

ACC NR: AP6006852

SOURCE CODE: UR/0181/66/008/002/0573/0575

85
84
B

AUTHOR: Serebrov, L. A.; Salin, V. I.

ORG: none

TITLE: Field-amplified secondary emission from thin dielectric and semiconductor layers

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 573-575

TOPIC TAGS: secondary emission, dielectric material, semiconductor material, zinc sulfide, manganese compound, fluoride, conduction electron, dielectric layer, electron beam, electron energy

ABSTRACT: The authors study field-amplified secondary emission by measuring the potential in the emitting section of the target. A pulsed electron beam was passed through thin films of zinc sulfide and manganese fluoride in vacuum. The potential of the target was continuously measured by recording "readout" signals generated by scanning the specimen with a beam which was expanded into a delayed television raster. Curves are given showing the emission amplification factor and electron-excited conductivity in the specimens as a function of the primary electron energy. The curves for field-amplified secondary emission show maxima at a primary electron

Card 1/2 21,44,55

2

Card 2/2 vmb

FEDYUSHKIN, M.F.; SALIYEV, A.A.

The oldest veterinary laboratory. Veterinariia 42 no.11:10-13 N '65. (MIRA 19:1)

1. Direktor Severo-Osetinskoy respublikanskoy veterinarnoy laboratorii (for Fedyushkin). 2. Prorektor Sel'skokhozyaystvennogo instituta Severo-Osetinskoy ASSR (for Saliyev).

SALIN, Yu.

Miocene zoogeography of Kamchatka and the volcanism of the Central Range. Dokl. AN SSSR 155 no. 5:1078-1081 Ap '64. (MIRA 17:5)

1. Institut vulkanologii Sibirskogo otdeleniya AN SSSR. Predstavleno akademikom A.L.Yanshinym.

YANUSHEVICH, Aleksandr Ivanovich; SALIN, Yu.L., red.

[Game animals and birds of Western Siberia and hunting] Promyslovye zveri i ptitsy Zapadnoi Sibiri i okhota na nikh. Omsk, Omskoe obl.gos.izd-vo, 1950. 142 p. (MIRA 13:12)

(Siberia, Western--Game and game birds)

SALIN, Yu.S.

Paleontological basis of the Neogene cross section of eastern Kamchatka. Izv. AN SSSR. Ser.geol. 29 no.6:86-93 Je '64. (MIRA 18:2)

1. Institut volkanologii Sibirskogo otdeleniya AN SSSR, Petropavlovsk-Kamchatskiy.

BERDYSHEV, Gennadiy Dmitriyevich, kand. med. nauk; RATNER, Vadim Aleksandrovich; SALGANIK, R.I., kand. biol. nauk, red.; IVANNIKOV, B.F., red.

[Code of heredity] Kod nasledstvennosti. Novosibirsk, Novosibirskoe knizhnoe izd-vo, 1963. 85 p. (MIRA 17:5)

1. Nauchnyye sotrudniki Instituta tsitologii i genetiki Sibirskogo otdeleniya AN SSSR (for Berdyshev, Ratner).

SALGANIK, R.I.; KIKNADZE, I.I.; MOROZOVA, T.M.; GUBENKO, I.S.; DREVICH, V.F.

Nature of pyronin-stained granules in a fraction of isolated cell nuclei. TSitologiia 5 no.5:499-505 S-O '62.

(MIRA 18:5)

1. Laboratoriya nukleinovykh kislot i Laboratoriya obshchey tsitologii Instituta tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

SALGANIK, R.I.; TRUKHACHEV, A.A.

Effect of deoxyribonuclease on the multiplication of adenoviruses in tissue culture. Izv.SO AN SSSR no. 8. Ser. biol.-med. nauk no.2:99-101 '63. (MIRA 16:11)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

AID Nr. 996-9 24 June

RADIOPROTECTIVE ACTION OF POLYANIONS OF X-IRRADIATED MICE (USSR)

Angutinskaya, S. V., and R. I. Salganik. Radiobiologiya, v. 3, no. 2, 1963, 276-280.
S/205/63/003/002/019/024

Pubescent mice (C-57, BALB strain) weighing 17 to 26 g were subjected to x-irradiation with lethal doses of 750 to 800 r from an РУМ-3 apparatus (180 kv; 15 ma; filters, 0.5 mm Cu and 1 mm Al; distance, 30 cm; dosage, 40 to 60 r/min). Hyaluronic acid, heparin, ribonucleic acid (RNA), polyxenylphosphate, and polyphenylphosphate were injected intravenously (0.3 to 0.5 ml per mouse) 15 to 30 min before exposure. The survival rate during a 30-day observation period was accepted as an index of the effectiveness of the injected preparations. Hyaluronic acid (50 mg per 100 g body weight)

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AID Nr. 996-9 24 June

RADIOPROTECTIVE ACTION OF POLYANIONS (Cont.) S/205/63/003/002/019/024

injected intraperitoneally showed a definite protective effect against irradiation with 750 to 800 r: 14 of 37 mice survived after 30 days (37.9%), while only 6 of 52 controls survived (11.5%). With injections of heparin (75 mg per 100 g body weight), 41.7% test mice survived against 28% of the controls. RNA (50 mg per 100 g body weight) showed a higher survival rate: 50% of the test mice survived against 33% of the controls. Preliminary experiments with polyxenylphosphate and polyphenylphosphate indicate that these preparations had a protective effect. Intravenous injections of cysteine increased the survival rate of test animals to 48.2% against 7.5% of the controls. The most marked protective effect (40 to 50% against 5% survival rate) was obtained by a simultaneous injection of cysteine and polyanions: survival rate, 22.4 days against 15.0 of the controls. The data obtained

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AID Nr. 996-9 24 June

RADIOPROTECTIVE ACTION OF POLYANIONS [Cont'd] S/205/63/003/002/019/024

show that the polyanions, which differ in their structure and chemical properties, exerted a definite protective action against irradiation. These preparations have in common the following characteristics: 1) they are polymers, and 2) they contain acid groups in their monomers. Ionizing radiation apparently disrupts the primary (intranucleotide bonds) and the secondary (hydrogen bonds) structures of DNA. Polyanions exert an anti-denaturing effect and protect the DNA molecule from the damaging effect of radiation. A study of the mechanism of their radioprotective action is being continued. [SGM]

Card 3/3

DASHKEVICH, V.S.; SALGANIK, R.I.

Study of the condition of DNA in cells of a malignant tumor and embryonic tissue. Izv. SO AN SSSR no.12. Ser. biol.-med. nauk no.3:136-138 '63. (MIRA 17:4)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

SALGANIK, R. I.,

"Application of Radiation Denaturation of DNA in Combination with Chemical Mutagens to Affect the Mutational Process."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands, 2-10 Sep 63.

SALGANIK, R.I.; TOMSONS, V.P.; PROTAS, L.K.

Study of the effect of some polyanions on the multiplication of poliomyelitis virus in connection with phenomena of RNA denaturation. Vop. virus 8 no.2:155-159 Mr-Ap'63 (MIRA 16:12)

1. Laboratoriya nukleinovykh kislot i nukleoproteidov Instituta tsitologii i genetiki Sibirskogo otdeleniya AN SSSR.

SALGANIK, R.L. (Moskva).

Characteristics of nonuniform quasi-linear equations. Iz. AN SSSR. Mekh. i mashinostr. no.4:178 Jl-Ag '63. (MIRA 17:4)

L 12856-63 EWT(1)/EWT(m)/BDS/ES(j) AFFTC/AMD/ASD AR/K
ACCESSION NR: AP3003921 S/0205/63/003/004/0489/0491

56
55

AUTHOR: Salganik, R. I.

[redacted]

TITLE: The probable role of DNA denaturation in the biological effect of radiant energy and in mutagenesis

SOURCE: Radiobiologiya, v. 3, no. 4, 1963, 489-491

TOPIC TAGS: DNA, DNA radiation denaturation, DNA denaturation, replication, DNA synthesis, mitosis, radioprotection, polyanion, chemical mutagen, mutation

ABSTRACT: The author reviews the literature on denaturation of DNA by radiation, in which it has been established that radiant energy in moderate doses stimulates DNA synthesis, cell division, and tissue growth, though large doses of radiant energy, by denaturing DNA, can disrupt single-chain nucleotides, disturb their replication, and inhibit DNA synthesis and mitosis. These effects suggest the consideration of new mechanisms of radioprotection, including the prevention of denaturing of DNA by radiation. Summarizing his own investigations, the author concludes that DNA denaturation can be hindered by polyanions. Various polyanions were tested in animal irradiation experiments and the majority were found to have value as radioprotectors. It is suggested that gradual radiation denaturation may be used in combination with chemical mutagens

Card 1/2

L 12856-63
ACCESSION NR: AP3003921

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of determinate type to reveal the loci of action of the latter in two-strand DNA, making possible the selective action of mutagens on individual genetic loci to produce predetermined, limited mutations.

ASSOCIATION: Institut tsitologii i genetiki SO AN SSSR, Novosibirsk (Institute of Cytology and Genetics, SO AN SSSR)

SUBMITTED: 09Jun62 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: AM NO REF SOV: 010 OTHER: 016

Card 2/2

SALGANIK, R.I.; GUBENKO, I.S.

Pyroninephilic granules appearing in the cytoplasm after deoxyribonuclease treatment. TSitologiia 5 no.6:674-676 N-D '63. (MIRA 17:10)

1. Laboratoriya nukleinovykh kislot i Laboratoriya tsitologii Instituta tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

L 27842-65 EWT(m)/EWA(b) RM
ACCESSION NR: AP5000094 S/0205/64/004/006/0865/0869 24
23
B

AUTHOR: Bandura, Z. I.; Voronina, Ye. N.; Poslovina, A. S.; Goryukhova, N. M.; Salganik, R. I.

TITLE: Investigation of the combined action of chemical mutagens and ultraviolet rays on formation of reversible mutations in E. coli 113-3

SOURCE: Radiobiologiya, v. 4, no. 6, 1964, 865-869

TOPIC TAGS: E. coli 113-3 culture, ultraviolet irradiation, chemical mutagen, formaldehyde, hydroxylamine, desoxyribonucleic acid, nucleotide, mutation

ABSTRACT: Literature sources indicate that under the effect of ultraviolet irradiation certain chemical mutagens can change the mutability of the same DNA locus differently depending on its nucleotide composition. In the present study the combined mutagenic effects of ultraviolet irradiation and the chemical mutagens, hydroxylamine and formaldehyde, were investigated in cultures of E. coli 113-3, an auxotrophic mutant deficient in B_{12}. The E. coli 113-3 cultures with the addition of formaldehyde ($3 \cdot 10^{-2}$ M

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L 27842-65
ACCESSION NR: AP5000094 O

concentration) or hydroxylamine (10^{-2} M concentration) were ultraviolet irradiated (BUV-15 bactericidal lamp, 30 cm focal length) with single doses of 80, 160, 315, and 630 ergs/mm^2. The cultures were protected against photoreactivity during irradiation and after. The number of mutations induced by ultraviolet irradiation and the chemical mutagens were first determined for each factor separately and then for combined action. Findings show that ultraviolet irradiation combined with formaldehyde action sharply increases the number of reversible mutations in E. coli 113-3 auxotrophs, exceeding the separate mutation effect of each factor by 2-5 times. Under similar conditions hydroxylamine reduces the mutagenic effect of ultraviolet irradiation, although hydroxylamine by itself clearly displays mutagenic properties. The explanation offered for the combined action mechanism of chemical mutagens and ultraviolet irradiation is that DNA denaturation under the effect of ultraviolet irradiation increases the reactivity of the nitrogenous bases in the DNA molecules. Orig. art. has: 2 tables and 1 figure.

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L 27842-65
ACCESSION NR: AP5000094

ASSOCIATION: Institut tsitologii i genetiki SO AN SSSR, Novosibirsk (Institute of Cytology and Genetics SO AN SSSR)

SUBMITTED: 07Sep63 ENCL: 00 SUB CODE: LS

NR REF SOV: 010 OTHER: 008

Card 3/3

SALGANIK, R.I.; KNORRE, V.L.

Effect of deuterium substitution on the thermal helix-coil transition in DNA. Biofizika 9 no.2:160-161 '64. (MIRA 17:12)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

KOLEN, A.A.; MIKHAYLOVSKAYA, I.Ye.; SALGANIK, R.I., kand. biol. nauk

Use of deoxyribonuclease for the treatment of virus diseases of eyes. Izv. SO AN SSSR no.8 Ser. biol.-med. nauk no.2:145-146 '64 (MIRA 18:1)

1. Novosibirskiy meditsinskiy institut, i Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

MOROZOVA, T.M.; GOREL', F.L.; SALGANIK, R.I.

Study of the reaction of native and denaturated DNA with a chromophore derivative of nitrogen yperite. Biokhimiia 30 no.1:67-73 Ja-F '65. (MIRA 18:6)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

NABERUKHIN, Yu.I.; MOLIN, Yu.N.; KNORRE, V.L.; RYKOVA, V.I.; SALGANIK, R.I.

Causes of signal broadening of water proton resonance in DNA solutions. Biofizika 10 no.3:408-412 '65. (MIRA 18:10)

1. Institut khimicheskoy kinetiki i goreniya, Novosibirsk i Institut tsitologii i genetiki Sibirskogo otdleneiya AN SSSR, Novosibirsk. Submitted Dec. 1, 1964.

MOROZOVA, T.M.; SALGANIK, R.I.

Study of the effect of hydrozylamine on native and denaturated DNA. Biokhimiia 29 no. 1:17-21 Ja-F '64. (MIRA 18:12)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR, Novosibirsk. Submitted Jan. 18, 1963.

ACC NR: AP7002695 SOURCE CODE: UR/0424/66/000/006/0076/0080

AUTHOR: Barenblatt, G. I. (Moscow); Yentov, V. M. (Moscow); Salganik, R. L. (Moscow)

ORG: none

TITLE: On kinetics of crack propagation. Failure condition and long-time strength

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 6, 1966, 76-80

TOPIC TAGS: crack propagation, cohesion modulus, ~~[illegible] crack propagation,~~ ~~solid~~ material failure, ~~long time~~ fatigue strength

ABSTRACT: A general approach to the study of crack propagation in solids with time-dependent cohesion modulus was discussed by the authors (Inzhenernyy zhurnal. MTT, 1966, no. 5) and reported in the ATD Press v. 5, no. 101. In the present article a general statement of the problem of time-related crack propagation is presented, the conditions of brittle failure of solids having similar characteristics are formulated, and certain problems of crack advance under long-time loading are examined. After explaining the gist of the failure-problem formulation (in the statical theory of equilibirum cracks) for solids with cohesion modulus independent of time, the effect of a monotonic variation of the cohesion modulus with time on the process of failure is pointed out. The failure occurs under an arbitrary (no matter how small) load, not instantly, but after a certain time interval. Both the magnitude of the load and the time elapsed depend on the path of loading. The essence of solving the stress-propaga-

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ACC NR: AP7002695

tion problem consists in determining the fields of elastic stresses in the solid and the time-related coordinates of the points of cracks in such a way that the statical equations of elasticity theory, the boundary conditions, and conditions of stress finiteness at the points of cracks will be satisfied. The concept of the time (duration) of the failure is introduced, which represents, in certain cases, the long-time strength of the solid. The above general considerations are illustrated by a sample analysis of the failure of a plate with a crack subjected to uniform tensile stresses at infinity in a direction perpendicular to the crack length. Two paths of loading are considered: 1) sudden application of the load; and 2) application of the load at a constant rate. In (1), the time of failure depends strongly on the initial length of the crack (opposite to the theory of equilibrium cracks). In (2), it is shown that the failure stress increases with increasing rate of loading. The procedure employed in analyzing the kinetics of crack propagation in a case when the cohesion modulus of the solid varies nonmonotonically with time is discussed. Orig. art. has: 5 figures and 4 formulas. [WA-52]
[VK]

SUB CODE: 20/ SUBM DATE: 21Jun66/ ORIG REF: 003

Card 2/2

AUTHOR: Salganik, R.L. SOV/24-58-6-26/35

TITLE: ~~Calculation~~ of the Hydraulic Channel Link of a Turbo-Drill Tachometer (K raschetu gidravlicheskogo kanala svyazi takhometra turbobura)

PERIODICAL: Izvestiya akademii nauk SSSR Otdeleniye Tekhnicheskikh nauk, 1958, Nr 6, pp 131-133 (USSR)

ABSTRACT: In order to measure the number of revolutions of the shaft of a turbo-drill pressure pulses can be used whose frequency is a multiple of the number of revolutions executed by the shaft. The frequency of these pulses can then be measured at the surface. The present paper is concerned with oscillations of pressure and the velocity in a liquid flowing in an elastic duct. A straight line duct is considered at whose input a known amount of liquid is entering while at its output a device is set up which cuts off the flow at such a frequency that at the instant when the cut-off is applied the motion of the liquid may be considered as stationary. Expressions

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SOV/24-58-6-26/35

Calculation of the Hydraulic Channel Link of a Turbo-Drill Tachometer

are derived for changes of pressure at the input to the duct while the current is cut off at the out-put at a known rate. These expressions are in the form of a solution of a differential equation (Eq 1).

There are 1 figure and 2 references (Soviet)

SUBMITTED: November 25, 1957

Card 2/2

ROZENBERG, G.D. (Moskva); SALGANIK, R.L. (Moskva)

Using the bore-hole as a hydraulic transmission channel. Izv. AN SSSR. Otd.tekh.nauk. Energ. i avtom. no.4:148-151 Jl-Ag '59.

(MIRA 12:11)

(Boring) (Hydraulics)

S/024/60/000/02/019/031
E140/E135

AUTHORS: Rozenberg, G.D., and Salganik, R.L. (Moscow)

TITLE: On the Application of Riemann's Method to the Solution of a System of Telegrapher's Equations with Constant Coefficients for a Bounded Line

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 2, pp 153-163 (USSR)

ABSTRACT: Problems of integration of a system of telegrapher's equations for a finite line can be reduced to integral equations. The boundary conditions may contain unknown functions and their first time derivatives. Extension to the case of boundary conditions with higher derivatives may be carried out. The method is most suitable to calculate transients with boundary conditions varying with time. The problem reduces to a solution of Volterra's integral equation which has obvious advantages in comparison with the Fourier, operational and characteristic methods. The possibility exists of relatively simple determination of an analytic solution (with estimate of precision). It is shown that the system of telegrapher's equations (1) is also valid for

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S/024/60/000/02/019/031
E140/E135

On the Application of Riemann's Method to the Solution of a System of Telegrapher's Equations with Constant Coefficients for a Bounded Line

the motion of a viscous fluid in an elastic tube. It is demonstrated that the problem reduces to the Cauchy problem which may be solved by Riemann's method. Three examples are considered: distortionless line; a line with distortion and linear boundary conditions; non-linear boundary conditions. The method of solution is demonstrated for each of these cases.
There are 4 figures and 1 Soviet reference.

Card
2/2

SUBMITTED: August 24, 1959

S/020/61/140/006/009/030
B104/B102

AUTHORS: Zel'dovich, Ya. B., Academician, Barenblatt, G. I., and
Salganik, R. L.

TITLE: Quasi-periodic precipitations during mutual diffusion of two substances (Lisegang rings)

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 6, 1961, 1281 - 1284

TEXT: During mutual diffusion of two reacting substances insoluble precipitates fall out in so-called Lisegang rings. The most probable formation of Lisegang rings is described as follows: During diffusion the solution is supersaturated as long as the product ab of the concentrations a and b of the substances A and B does not reach a critical value k (metastable limit). As ab exceeds k at a given point, one of the reaction components is precipitated completely. Due to diffusion, a new portion of this component enters the impoverished region and the precipitation mechanism appears again. If the region of precipitations does not propagate too fast, the following precipitation is somewhat distant from the pre-

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vious one. In the present paper, an approximation of the formation of Lisegang rings during diffusion of substances in a cylindrical tube is given. The authors derive a and b as functions of the reduced parameter $\xi = x/x_n$, where x is the coordinate of the axis of the tube, and x_n is the coordinate of the n-th precipitation. For sufficiently high n the distributions of a and b within the ranges $1 < \xi < \infty$ and $1 < \tau < \gamma$ ($\tau = t/t_n$) depend on $c = a_o/b_o$ (a_o and b_o are the concentrations before diffusion starts), $\varkappa = k/a_o b_o$ and $\alpha^2 = D_a/D_b$ (D_a and D_b are the diffusion coefficients of the substances A and B). The distributions do not depend on n. Under this condition of quasi-periodicity the distributions of a and b as functions of $\mu = x_{n+1}/x_n$, $\gamma = t_{n+1}/t_n$, $\eta = \sqrt{D_a t_{n+1}}/x_{n+1}$, μ, c and $\varkappa$ are studied. The results allow the metastable limit k to be experimentally determined. The authors thank L. Ya. Semenova for calculations. There are 2 figures and 3 Soviet references.

ASSOCIATION: Institut mekhaniki Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Institute of Mechanics of Moscow State University imeni M. V. Lomonosov)

Quasi-periodic precipitations during ... S/020/61/140/006/009/030
B104/B102

SUBMITTED: July 25, 1961

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Card 3/3

S/040/62/026/002/015/025
D299/D301

AUTHORS: Barenblatt, G.I., Salganik, R.L., and Cherepanov, G.P. (Moscow)

TITLE: On the propagation of running cracks

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 2, 1962, 328 - 334

TEXT: A formula is derived for the rate of propagation of the crack as a function of the applied stress. This formula is discussed as well as the experiments by A.A. Wells and D. Post. An infinite, homogeneous, isotropic, brittle, and elastic body is considered, under a constant stress p. The length $2l_0$ of the initial crack exceeds the critical value, so that the crack starts developing at once. The assumptions are stated with respect to the 2 regions (internal and terminal) into which the crack surface is divided; the distribution of the cohesion forces g(x) is also given. These forces are taken into account in the derivation of the formula for the rate of propagation of the crack as a function of p. After transformations, one obtains the desired formula

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S/040/62/026/002/015/025
D299/D301

On the propagation of running cracks

$$\frac{p\sqrt{c}}{R} = \frac{1}{\pi F(m, \nu)}, \qquad (2.8)$$

where c, ν and R are material constants, and m = V/c (V being the rate of propagation). Formula (2.8) is plotted for several values of ν. With sufficiently small p, Eq. (2.8) has no solution, so that no uniform-propagation regime exists. With p, larger than the critical value, corresponding to the minimum of the right-hand side of (2.8), there are for each value of p, 2 values of m; to the smaller of the two values corresponds non-stationary crack propagation, whereas to the larger value corresponds uniform propagation. The latter can only occur in the time interval

$$l_0/c \ll t \ll T \qquad (3.4)$$

where T is the time in which the terminal region develops. With $t > T$, the cohesion forces can no longer sustain uniform propagation; the rate of propagation increases until it reaches a value at which the crack ramifies; thereupon linear propagation ceases. The above theoretical considerations are in agreement with the experiments by Wells and Post. The quantity R is determined by means of

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S/040/62/026/002/015/025
On the propagation of running cracks D299/D301

their experimental data. There are 5 figures and 9 references: 3 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: K.B. Broberg, The propagation of a brittle crack, Arkiv för fysik, 1960, v. 18, 159-192; A.A. Wells and D. Post, The dynamic stress distribution surrounding a running crack, -a photoelastic analysis. Proc. Soc. Exper. Stress Analysis, 1958, v. 16, no. 1; G.R. Irwin. The dynamic stress distribution surrounding a running crack, -a photoelastic analysis. Discussion. Proc. Soc. Exper. Stress Analysis, 1958, v. 16, no. 1; G.R. Irwin, Fracture, in "Encyclopedia of Physics", v. 6, 551-590, Springer-Verlag, Berlin, 1958.

ASSOCIATION: Institut mekhaniki Moskovskogo universiteta (Institute of Mechanics of Moscow University)

SUBMITTED: November 30, 1961

Card 3/3

L 10137-63 BDS

ACCESSION NR: AP3000901 S/0179/63/000/002/0193/0198

47

AUTHOR: Barenblatt, G. I.; Grigoryan, S. S.; Nikitin, L. V.; Salganik, R. L.

TITLE: On V. N. Nikolayevskiy's papers on the dynamics of fluid-saturated deformable porous media.

SOURCE: AN SSSR. Izv. Otd. tekh. nauk. Mekhanika i mashinostroyeniye, no. 2, 1963, 193-198

TOPIC TAGS: soil, porous soil, fluid-saturated porous soil, seismology, seismoelectricity, seismic petroleum exploration, Ya. I. Frenkel', M. A. Biot, acoustics, wave propagation, soil consolidation, ground water

ABSTRACT: This theoretical paper comprises a critique of articles published recently by V. N. Nikolayevskiy (Inzhenernyy zh., v. 2, no. 3, 1962; Akad. nauk SSSR, Izv., Otd. tekh. nauk., no. 5, 1962), in which Nikolayevskiy examines the fundamental problems of the dynamics of linearly deformed porous media saturated with a liquid. It is noted that in his first paper Nikolayevskiy makes no reference to Ya. I. Frenkel''s paper "On the theory of seismic and seismoelectric phenomena in a moist soil" (Akad. nauk SSSR., Izv., Ser. geogr. i geofiz., v. 8, no. 4

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L 10137-63
ACCESSION NR: AP3000901

1944) and M. A. Biot's "Theory of propagation of elastic waves in a fluid-saturated porous solid, "Parts One and Two (J. Acoust. Soc. Amer., v. 28, no. 2, 1956) which are the fundamental classical treatises on this subject. In his second paper, Nikolayevskiy refers to these works by Frenkel' and Biot, but asserts that because (a) in their studies"...no account was taken of the need to fulfill the equations of the conservation of impulse of the entire system" and, also, because (b) "...of the simplifying assumption of constant density..." his basic equations differ from the basic equations of Frenkel' and Biot. The present paper shows that difference (a) is illusory, since under the simplifying assumption (b) the fundamental equations of both of Nikolayevskiy's works constitute a linear combination of the Frenkel' equations and that their physical interpretation as shown in N.'s papers is erroneous. It is also shown that the solutions of problems on the propagation of waves as adduced in N.'s two papers coincide with the solutions of the same problems already set forth by Ya. I. Frenkel' (loc. cit.) under the same simplifying assumptions (b) wherever N.'s solutions do not contain computing errors. The paper discusses the attempt made in N.'s second paper to take into account dynamic corrections in the ordinary theory of consolidation of a soil and shows its incorrectness. It is concluded that the difference of the fundamental relationships developed in N.'s two papers and the results of antecedent investigations consists in errors of a

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ACCESSION NR: AP3000901

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fundamental and computational character committed by Nikolayevskiy. There are 18 numbered equations.

ASSOCIATION: none

SUBMITTED: 17Dec62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: MA,AP,EL NR REF SOV: 007 OTHER: 001

Card 3/3

S/0207/63/000/005/0062/0068

ACCESSION NR: AP3014921

AUTHORS: Gol'dshteyn, R. V. (Moscow); Salganik, R. L. (Moscow)

TITLE: On cracks advancing between flat plates along the rectilinear boundary of a glued joint

SOURCE: Zhurnal prikl. mekhaniki i tekhn. fiziki, no. 5, 1963, 62-68

TOPIC TAGS: rectilinear crack, glued joint, flat plate glued joint, equilibrium crack propagation, crack wedging

ABSTRACT: In the problem in the title, the form of the crack and distribution of cohesion forces in the end regions of the quasi-statically advancing end do not depend on the applied loads (hypothesis of autonomicity of the end region). A crack advancing along the boundary of a joint between two elastic materials has these properties only in very special cases. In the general case its behavior is different. In the end region of such a crack due to bulging, one edge presses against another as a result of the difference in the properties of the substances. Where they press, there are reaction forces which affect the moving end of the crack. Thus there is no local symmetry in the general case. Near the end of the extended crack there arise both tangential and normal stresses. Nevertheless, if the places

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where the edges touch are concentrated only near the ends of the crack, then the autonomicity hypothesis can be generalized. This generalized hypothesis turns out to be equivalent to the assumption of constant working, which leads to distribution in a small end region of the forces of interaction of opposite edges of the crack with formation of a unit length of crack. For experimental verification of the admissibility of such an assumption, it is necessary to obtain some results from it. Thus, the authors study two problems on crack propagation along the rectilinear boundary of a joint: the first on a crack stretched by given normal stresses, and the second on splitting along the boundary by a rigid, smooth, semi-infinite wedge of constant thickness. For the first problem it is concluded that as the load P increases, the length of the crack ℓ remains unchanged until P attains a value corresponding to a given length ℓ along the curve $\ell(P)$. If ℓ is sufficiently small, then, once P attains the indicated value, there begins a quasi-static increase in the length of the crack along the curve $\ell(P)$. In the framework of the generalized autonomicity hypothesis this increase can be detected only up to values of ℓ somewhat exceeding ℓ_1 which corresponds to the point of intersection of the line S with the curve $\ell(P)$ (see Fig. 1 on the Enclosure). In the regions of such values of ℓ, the dependence $\ell(P)$ is unique. For the second problem, the length of free crack ℓ is proportional to the square of the thickness of the wedge 2h. If the elastic properties of the joined substances were identical, then the wedge

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ACCESSION NR: AP3014921

would extend into each of them at the value h. The qualitative and quantitative results obtained by the authors can be verified experimentally. Using these results, one can find experimentally the specific surface energy T and check whether it is constant when the exterior parameters change. "The authors thank G. I. Barenblatt for proposing these problems and his constant attention to this work. They also thank S. S. Grigoryan for discussing the results of the work." Orig. art. has: 18 formulas and 1 figure.

ASSOCIATION: Institut mekhaniki MGU (Institute of Mechanics, Moscow State University)

SUBMITTED: 14Jun63 DATE ACQ: 27Nov63 ENCL: 01

SUB CODE: AP NO REF SOV: 011 OTHER: 000

Card 3/~~4~~ 3

S/0040/63/027/003/0436/0449

ACCESSION NR: AP3003238

AUTHORS: Barenblatt, G. I. (Moscow); Salganik, R. L. (Moscow)

TITLE: Splitting brittle bodies. Auto-oscillations in splitting.

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 3, 1963, 436-449

TOPIC TAGS: splitting, brittle body, auto-oscillations, semi-infinite wedge, propagation of oscillations, lithium fluoride crystal, bismuth crystal

ABSTRACT: The authors develop a theory for the auto-oscillation process arising with splitting. The theory is based on the assumption that the modulus of cohesion --the basic characteristic of the forces exerted on the end of the crack--depends on the instantaneous velocity of propagation of the end of the crack, which at first decreases as the velocity increases. This decrease of the modulus of cohesion with increase in the velocity of propagation of the crack for quasi-brittle shattering in a wide class of materials is also related to decrease in nonelastic deformation in the surface layer of the crack. In accordance with experimental data it can be assumed that the splitting velocities in which auto-oscillations arise (at least for reasonable dimensions of the body being split) are those which are essentially smaller than the velocity of propagation of transverse oscillations. The assumption

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ACCESSION NR: AP3003238

of a quasi-brittle nature of shattering means that, in splitting, a thin zone of nonelastic deformations is formed near the surface of the crack. The results make it possible to explain the occurrence of auto-oscillations for both crystalline and amorphous substances, in which there is the dependence K(v) (K is the modulus of cohesion, v is the velocity of the end of the crack). Very little is known about this dependence. From the experimental data on "stability" of splitting of certain crystals at high speeds one cannot even draw conclusions about the existence of a critical velocity for crystals. The oscillation amplitude of a length of free crack grows as the velocity of the wedge increases. Therefore, a smooth impact surface may be obtained not because of high velocity of splitting but because the oscillation amplitude of the length of free crack exceeded the dimensions of the crystal, so that the nonuniformity of motion of the end of the crack could not be noted on the length of the crystal. With increase in wedge velocity, the length of the wave increases until finally the surface of impact is not smooth. For crystals one would expect weak dependence K(v) rather than strong. On the other hand, for such substances as amorphous polymers, this dependence is evidently strong, and the presence of marked viscosity makes it possible to think that their critical velocity is small. In such materials, most of all there will be discontinuous relaxation oscillations with interruption of the end of the crack, characteristic for strong dependence K(v), having a minimum. Oscillations with interruption of the end of the

ACCESSION NR: AP3003238

crack (relaxational and nonrelaxational) evidently have a basic meaning. It may be that as a result of cold hardening, K will depend on the extent of the interruption. Here there is also an analogy with friction: the coefficient of friction may depend on the extent of contact of the rubbing surfaces. Orig. art. has: 6 figures and 35 formulas.

ASSOCIATION: Institut mekhaniki Moskovskogo universiteta (Institute of Mechanics, Moscow University)

SUBMITTED: 10Mar63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: AP NO REF SOV: 009 OTHER: 005

Card 3/3

ACCESSION NR: AP4015983 S/0040/63/027/005/0957/0962

AUTHOR: Salganik, R. L. (Moscow)

TITLE: Brittle fracture of glued bodies

SOURCE: Prikl. matem. i mekhan., v. 27, no. 5, 1963, 957-962

TOPIC TAGS: brittle fracture, glued body, crack propagation, hydraulic fracture, plane deformation, local symmetry, contact area

ABSTRACT: Cracks propagate in glued bodies the way they do in homogenous material if the joint is sufficiently strong. The author studies crack propagation when the joint is relatively weak, in which case the nature of propagation is quite different. Local symmetry is lacking because the crack goes along the boundary of the joint rather than moving in relation to the stress. The different properties of the materials may give rise to bulging along the crack. The pressure in these contact areas may be added to the other stresses and affect the advancement of the crack. Both tangent and normal stresses arise in this situation. The author derives equilibrium conditions for such a crack by extending the theory used for cracks in homogeneous material and proposes a method for determining the position

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ACCESSION NR: AP4015983

of the ends of the crack. "The author thanks G. I. Barenblatt for the statement of the problem and his help with the work. The author expresses his unbounded gratitude to R. V. Gol'dshteyn for his help in this work." Orig. art. has: 3 figures and 20 formulas.

ASSOCIATION: Institut mekhaniki Moskovskogo universiteta (Institute of Mechanics, Moscow University)

SUBMITTED: 11Jun63 DATE ACQ: 21Nov63 ENCL: 00

SUB CODE: AP NO REF SOV: 009 OTHER: 003

Card 2/2

BARENBLATT, G.I. (Moskva); SALGANIK, R.L. (Moskva)

Self-oscillations occurring in the cleavabe of slender bodies. Prikl. mat. i mekh. 27 no.6:1075-1077 N-D '63. (MIRA 17:1)

SALGANIK, R.I.

Investigation of nucleic acids and the control of virus diseases. Vest. AN SSSR 33 no.11:75-79 N '63.
(MIRA 17:1)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR.

BARENBLATT, G. I. (Moskva); GRIGORYAN, S. S. (Moskva); SALGANIK, R. L.
(Moskva)

About V. N. Nikolaevskii's reply on comments on his articles.
Izv. AN SSSR. Mekh. i mashinostr. no.3:187-192 My-Je '64.
(MIRA 17:7)

L 24115-65 EWT(m)/EWP(w)/EPF(c)/EWA(d)/EWP(v)/EPR/EWP(j)/T/EWP(t)/EWP(b)
Pc-4/Pr-4/Ps-4 JD/WW/EM/RM

ACCESSION NR: AP5002868 3B S/0207/64/000/005/0091/0101

AUTHORS: Malyshev, B. M. (Moscow); Salganik, R. L. (Moscow)

TITLE: Studies in breaking of brittle splices by using fracture theory methods 18

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1964, 91-101

TOPIC TAGS: fracture propagation, tangential stress, resin, elastic deformation, stress concentration / ED-6 epoxy resin 5

ABSTRACT: Analytical and experimental investigations were carried out to determine the mechanism of fracture propagation in homogeneous as well as nonhomogeneous materials spliced together by resins. 15 Equations are given describing the normal and tangential stresses (σ_y, τ_{xy}) generated at the cut between two elastic bodies which, outside the cut, are in complete cohesion. These stresses are shown to be functions of β, which depends on the shear moduli and Poisson coefficients of the material, and s, the distance from the point in consideration on the cut to be end of the cut. From these two expressions, a functional equation is obtained for the fracture energy T of a cut or slit, given by

$$T = T_0 f(A_0 / B_0) = T_0 f(\sigma_y / \tau_{xy})$$

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L 24115-65

ACCESSION NR: AP5002868

where A_o and B_o are "coefficients of stress intensity." To verify this result experimentally, three simplified fracture (or tear) schemes are introduced where A_o and B_o take on a geometric meaning, $A_o/B_o = \tan \alpha$. These three schemes are depicted in Figures 1, 2, and 3 on the Enclosures. For Figures 2 and 3, the fracture or tear energy takes on simplified forms given by

$$T=\frac{3Pw}{2bl}=\frac{P^2l^2}{2bEI}=\frac{9EIw^2}{2bl^4}=\left(\frac{9P^4w^2}{8bEI}\right)^{1/3} \qquad T=\frac{P^2}{32\pi D^2}=\frac{Pw}{2\pi a^2}=\frac{8Dw^2}{a^4} \quad (2.6)$$

All three cases were tested experimentally by using plastic-on-plastic and plastic-on-steel splices with epoxy resin bonds. For case 1, it was assumed that E(Plastic) = 3×10^4 kg/cm^2 and : = 0.4. Measurements showed that T remains approximately constant (at 0.06 kg/cm) under a tensile force P ranging from 45 to 85 kg. In case 2, T was found to oscillate around the value of 0.04 kg/cm. The only disagreements with theory were obtained at w = 1 and 2.75-mm values where nonhomogeneities were found in the spliced joint. Finally, the case 3 results were plotted graphically as P versus deflection w and fracture radius "a" versus w. The fracture energy was estimated to be 0.017 kg/cm. "The authors are

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ACCESSION NR: AP5002868

2

grateful to G. I. Barenblatt for his constant influence on the work and his illuminating discussions." Orig. art. has: 11 formulas and 8 figures.

ASSOCIATION: Institut mekhaniki MGU (Institute of Mechanics, MGU)

SUBMITTED: 28Aug64 ENCL: 02 SUB CODE: MT, AS

NO REF SOV: 014 OTHER: 003

Card 3/5

SALGANIK, R.L. (Moskva)

Estimation of the error committed in the transition from the exact equations in the elasticity theory to two-dimensional equations describing a stressed state. Prikl. mat. i mekh. 28 no.4:791-794 Jl-Ag'64 (MIRA 17:8)

MALYSHEV, B.M. (Moskva); SALGANIK, R.L. (Moskva)

Use of methods of the theory of cracks in studying the fracture of brittle joints. PMTF no.5:91-101 S-O '64. (MIRA 18:4)

1. Institut mekhaniki Moskovskogo gosudarstvennogo universiteta.

MALYSHEV, B.M.; SALGANIK, R.L.

Use of the theory of cracks in determining the strength of fragile seams. Dokl. AN SSSR 160 no.1:91-94 Ja '65.

(MIRA 18:2)

1. Institut mekhaniki Moskovskogo gosudarstvennogo universiteta. Submitted July 6, 1964.

YENTOV, V.M. (Moskva); SALGANIK, R.L. (Moskva)

Beam approximation to the theory of cracks. Izv. AN SSSR, Mekh. no.5: 95-102 S-O '65. (MIRA 18:10)

L 10812-66

ACC NR: AP6000536 SOURCE CODE: UR/0040/65/029/006/0977/0992

AUTHORS: Barenblatt, G. I. (Moscow); Yentov, V. M. (Moscow); Salganik, R. L. (Moscow)

55
B

ORG: none

TITLE: Excitation pulse propagation in the electrochemical diffusion model of the nerve

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 6, 1965, 977-992

TOPIC TAGS: nerve fiber, nervous system, electrochemical analysis, current density, electric potential, nitric acid, Green function

ABSTRACT: The propagation of sensory pulses along nerves is analyzed using an electrochemical diffusion model. The model is based on the K. F. Bonhoeffer proposition (Vetter K. J. Zur Aktivierung und Repassivierung von passivem Eisen in Salpetersäure. Z. Phys. Chem., 1950, B. 106, 1/3, Sept., S. 127-159) which is given schematically in Fig. 1.

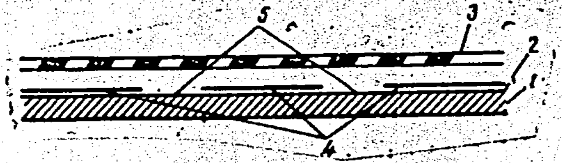

Fig. 1.

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ACC NR: AP6000536

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In this figure, (1) represents an iron structure placed on a capillary (3) filled with concentrated nitric acid (2). The interaction of the nitric acid with the iron leads either to the solution of iron in the acid or to formation on the fiber of a thin oxide level. This layer is either passive or active and is characterized by electric current densities which depend on the oxide film formation process. First, a set of equations is derived to calculate acid concentration C, electric potential generation φ, and active surface formation α under the boundary conditions of impenetrable and electrically isolated capillaries. The electric pulses are assumed to travel with constant speed w such that

$$\varphi=\varphi(\zeta, r), \quad C=C(\zeta, r), \quad c=c(\zeta), \quad \alpha=\alpha(\zeta)$$

and

$$\varphi(-\infty, r)=0, \quad C(-\infty, r)=c_0.$$

The equilibrium pulse propagation in the nerve then consists of the solution of the three equations

$$w\frac{d\alpha}{d\zeta}=-K\left[\alpha j_{3a}+(1-\alpha) j_{3b}\right]$$

$$-\sigma\delta\frac{d^2\varphi}{d\zeta^2}=\alpha(j_1+j_{2a})+(1-\alpha) j_{2b}+\left[\alpha j_{3a}+(1-\alpha) j_{3b}\right] c$$

$$w\frac{\partial C}{\partial\zeta}=D\left(\frac{\partial^2 C}{\partial\zeta^2}+\frac{\partial^2 C}{\partial r^2}+\frac{1}{r}\frac{\partial C}{\partial r}\right).$$

First, the conditions for the existence of pulses are analyzed in detail. It is shown that the activation front propagates with a finite velocity and that if any changes in the acid concentration $\varkappa = \beta/D = 0$ are completely neglected, there can be

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ACC NR: AP6000536

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no excitation pulses. For slowly varying nitric acid concentration, the above set of equations for the potential distribution is reduced to

$$p\frac{dp}{d\varphi}(A-\omega Ep)=X+\omega Bp-\lambda p\frac{d}{\varphi}\left(p\frac{dp}{d\varphi}\right)(\omega=w/K\sqrt{\sigma\delta},\ \lambda=\omega/J)$$

and solved for finite $\varkappa$ to yield

$$z=\frac{X_1+p_1B_1\omega}{A_1-p_1E_1\omega}+C\exp\left[-\frac{(A_1-\omega p_1E_1)}{\omega p_1}J_1(\varphi-\varphi_1)\right].$$

The structure of the excitation pulses is shown to be governed by the linearized equation

$$A\psi''-B\omega\psi'-X_1\psi=O(\varphi_0',\varphi_0'')+o(\psi,\psi',\psi'')\quad(\psi=\varphi-\varphi_0)$$
$$\psi(\infty)=0,\qquad\psi'(\zeta_0)=-\varphi_0'(\zeta_0)$$

which in turn can be expressed by a Green's function. Referring to Fig. 2,

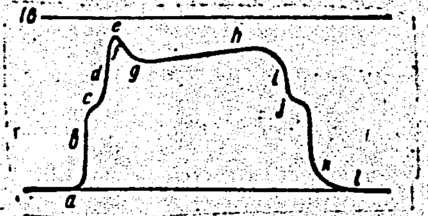

Fig. 2.

the potential difference between the solution and the iron is discussed on the basis of the solution of the above equation. For example: the portion abcde shows a fast

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0

advancing potential which exceeds the value of φ_k, the portion efghij shows a slowly falling potential to the value φ_k, and the portion jkl shows the potential falling sharply to its original value of zero. This diagram is then explained on the basis of the Bonhoeffer model of the activation and passivation processes. Orig. art. has: 35 equations and 6 figures.

SUB CODE: 06/ SUBM DATE: 21Jul65/ ORIG REF: 004/ OTH REF: 004

Card 4/4

SALGANIK, V.A., inzh.; KHIZHNYAK, G.K., inzh.

Preventing injuries in deepening mine shafts. Bezop. truda v prom. 3 no.6:17-18 Je '59. (MIRA 12:10)
(Mining engineering--Safety measures)

MORENKOV, F.L., inzh.; SALGANIK, V.A., inzh.; KHIZHNYAK, G.K., inzh.

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